CLAIMS

1. A hologram reproducing apparatus for reproducing signal information from a domain of diffraction grating of a recording media that is irradiated with a record light beam containing a coherent reference light component and a signal light component spatially modulated according to the signal information substantially on the same optical axis and is recorded an interference of the reference light component and the signal light component, comprising:

a light source for emitting a coherent light beam;

a light-beam irradiator for irradiating the light beam to the domain of diffraction grating of the recording medium;

a light collector for collecting a reproduced light beam reproduced by irradiating the light beam to the domain of diffraction grating toward a convergent position;

an incident-light processing unit provided at the convergent position and for separating a Fourier 0-order component of the reproduced light beam and a diffraction light component of the reproduced light beam; and

a detecting section for detecting the signal information from the diffraction component.

2. A hologram reproducing apparatus according to claim 1, wherein the incident-light processing unit includes an optical element for reducing a transmittance due to irradiation with the Fourier 0-order component of the reproduced light beam to a characteristic value lower than

a transmittance in an absence of irradiation.

3. A hologram reproducing apparatus according to claim 1, wherein the incident-light processing unit includes an optical element for reducing a reflectance due to irradiation with the Fourier 0-order component of the reproduced light beam to a characteristic value lower than a reflectance in an absence of irradiation.

4. A hologram reproducing apparatus according to claim 1, wherein the incident-light processing unit has a reflective area to reflect the Fourier 0-order component of the reproduced light beam and a transmissive area to transmit the diffraction component of the reproduced light beam.

5. A hologram reproducing apparatus according to claim 1, wherein the incident-light processing unit has a transmissive area to transmit the Fourier 0-order component of the reproduced light beam and a reflective area to reflect the diffraction component of the reproduced light beam.

6. A hologram reproducing apparatus according to claim 4 or claim 5, including an optical-axis detecting section for detecting a position of an optical axis of the reproduced light beam, and a drive section for moving the light collector and the incident-light processing unit on a basis of a position of the optical axis detected by the optical-axis detecting section.

7. A hologram reproducing apparatus according to claim 6, wherein the optical axis detecting section receives the

Fourier 0-order component of the reproduced light beam.

8. A hologram reproducing method for reproducing signal information from a domain of diffraction grating of a recording media that is irradiated with a record light beam containing a coherent reference light component and a signal light component spatially modulated according to the signal information substantially on the same optical axis and is recorded an interference of the reference light component and the signal light component, comprising:

an irradiation step of irradiating a coherent light beam to the domain of diffraction grating of the recording medium;

a light collecting step of collecting a reproduced light beam reproduced by the irradiating step toward a convergent position;

an incident-light processing step of separating a Fourier 0-order component of the reproduced light beam and a diffraction light component of the reproduced light beam by an incident-light processing unit provided at the convergent position; and

a reproducing step of reproducing the signal information from the diffraction component.

9. A hologram reproducing method according to claim 8, wherein the incident-light processing unit includes an optical element for reducing a transmittance due to irradiation with the Fourier 0-order component of the reproduced light beam to a characteristic value lower than

a transmittance in an absence of irradiation.

10. A hologram reproducing method according to claim 8, wherein the incident-light processing unit includes an optical element for reducing a reflectance due to irradiation with the Fourier 0-order component of the reproduced light beam to a characteristic value lower than a reflectance in an absence of irradiation.

11. A hologram reproducing method according to claim 8, wherein the incident-light processing unit has a reflective area to reflect the Fourier 0-order component of the reproduced light beam and a transmissive area to transmit the diffraction component of the reproduced light beam.

12. A hologram reproducing method according to claim 11, wherein the incident-light processing step includes an optical-axis detecting step of detecting a position of an optical axis of the reproduced light beam, and an alignment step of aligning an optical axis of the Fourier 0-component and the reflective area together on a basis of a position of the optical axis detected by the optical-axis detecting step.

13. A hologram reproducing method according to claim 8, wherein the incident-light processing unit has a transmissive area to transmit the Fourier 0-order component of the reproduced light beam and a reflective area to reflect the diffraction component of the reproduced light beam.

14. A hologram reproducing method according to claim 13,

wherein the incident-light processing step includes an optical-axis detecting step of detecting a position of an optical axis of the reproduced light beam, and an alignment step of aligning an optical axis of the Fourier 0-component and the transmissive area on a basis of a position of the optical axis detected by the optical-axis detecting step.

15. A hologram reproducing method according to claim 12 or claim 14, wherein the optical axis detecting step includes a step to receive the Fourier 0-order component of the reproduced light beam.